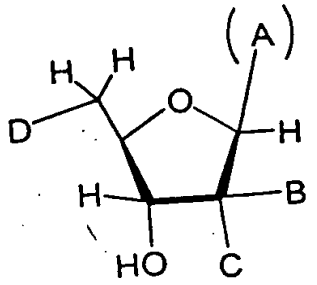
What is claimed is:

1. A compound represented by the formula:



wherein A is a nitrogen- , oxygen- , or sulfur-linked aryl, alkyl, cyclic, or heterocyclic group; B is hydrogen, or a halogen, amino, or thiol group; C is hydrogen, or a halogen, amino, or thiol group; and D is a primary alcohol, a hydrogen, or an oxygen, nitrogen, carbon, or sulfur linked to phosphate, a phosphoryl group, a pyrophosphoryl group, or adenosine monophosphate through a phosphodiester or carbon- , nitrogen- , or sulfur-substituted phosphodiester bridge, or to adenosine diphosphate through a phosphodiester or carbon- , nitrogen- , or sulfur-substituted pyrophosphodiester bridge.

2. The compound of Claim 1, wherein A is an N-linked aryl or heterocyclic group.

3. The compound of Claim 2, wherein A is a nicotinamide group, a pyridyl group, a substituted pyridyl group, a pyrimidyl group, or a substituted pyrimidyl group.

4. The compound of Claim 3, which is a nicotinamide 2'-deoxyriboside.

5. The compound of Claim 3, which is β-1'-nicotinamide-2'-deoxyribose, β-D-1'-nicotinamide-2'-deoxyribofuranoside, β-1'-pyridyl-2'-deoxyribose, or 5'-phospho-1'-pyridyl-deoxyribose.

6. The compound of Claim 1, wherein A is an O-linked aryl or heterocyclic group having the formula -O-Y, wherein Y is an aryl or heterocyclic group.

7. The compound of Claim 6, wherein the aryl or heterocyclic group is a phenyl group, a substituted phenyl group, a pyridyl group, a substituted pyridyl group, or a pyrimidyl group.

8. The compound of Claim 1, wherein A is an S-linked aryl or heterocyclic group having the formula -S-Y, wherein Y is an aryl or heterocyclic group.

9. The compound of Claim 8, wherein the aryl or heterocyclic group is a phenyl group, a substituted phenyl group, a pyridyl group, a substituted pyridyl group, or a pyrimidyl group.

10. The compound of Claim 1, wherein both B and C are hydrogen, or either B or C is a halogen, amino, or thiol group and the other of B or C is hydrogen.

11. The compound of Claim 2, wherein both B and C are hydrogen, or either B or C is a halogen, amino, or thiol group and the other of B or C is hydrogen.

12. The compound of Claim 6, wherein both B and C are hydrogen, or either B or C is a halogen, amino, or thiol group and the other of B or C is hydrogen.

13. The compound of Claim 8, wherein both B and C are hydrogen, or either B or C is a halogen, amino, or thiol group and the other of B or C is hydrogen.

14. The compound of Claim 1, wherein D is a primary alcohol or hydrogen.

15. The compound of Claim 2, wherein D is a primary alcohol or hydrogen.

16. The compound of Claim 6, wherein D is a primary alcohol or hydrogen.

17. The compound of Claim 8, wherein D is a primary alcohol or hydrogen.

18. A pharmaceutical composition comprising the compound of Claim 1 and a pharmaceutically-acceptable carrier.

19. A pharmaceutical composition comprising the compound of Claim 2 and a pharmaceutically-acceptable carrier.

20. A pharmaceutical composition comprising the compound of Claim 6 and a pharmaceutically-acceptable carrier.

21. A pharmaceutical composition comprising the compound of Claim 8 and a pharmaceutically-acceptable carrier.

22. A method for inhibiting an ADP-ribosyl transferase, ADP-ribosyl cyclase, or ADP-ribosyl hydrolase enzyme, comprising contacting the enzyme with an amount of the compound of Claim 1 effective to inhibit the enzyme.

23. A method for inhibiting an ADP-ribosyl transferase, ADP-ribosyl cyclase, or ADP-ribosyl hydrolase enzyme, comprising contacting the enzyme with an amount of the compound of Claim 2 effective to inhibit the enzyme.

24. A method for inhibiting an ADP-ribosyl transferase, ADP-ribosyl cyclase, or ADP-ribosyl hydrolase enzyme, comprising contacting the enzyme with an amount of the compound of Claim 6 effective to inhibit the enzyme.

25. A method for inhibiting an ADP-ribosyl transferase, ADP-ribosyl cyclase, or ADP-ribosyl hydrolase enzyme, comprising contacting the enzyme with an amount of the compound of Claim 8 effective to inhibit the enzyme.

26. A method for treating a disease or condition associated with an ADP-ribosyl transferase, ADP-ribosyl cyclase, or ADP-ribosyl hydrolase enzyme in a subject in need of treatment thereof, comprising administering to the subject the compound of Claim 1 in an amount effective to treat the disease or condition.

27. A method for treating a disease or condition associated with an ADP-ribosyl transferase, ADP-ribosyl cyclase, or ADP-ribosyl hydrolase enzyme in a subject in need of treatment thereof, comprising administering to the subject the compound of Claim 2 in an amount effective to treat the disease or condition.

28. A method for treating a disease or condition associated with an ADP-ribosyl transferase, ADP-ribosyl cyclase, or ADP-ribosyl hydrolase enzyme in a subject in need of treatment thereof, comprising administering to the subject the compound of Claim 6 in an amount effective to treat the disease or condition.

29. A method for treating a disease or condition associated with an ADP-ribosyl transferase, ADP-ribosyl cyclase, or ADP-ribosyl hydrolase enzyme in a subject in need of treatment thereof, comprising administering to the subject the compound of Claim 8 in an amount effective to treat the disease or condition.

add A1